Notes on Building Research Capacity from a Government Perspective

Clarification 1: Government Bias for Building Research Capacity along Mode 2 Knowledge Production (or a Mode 1 research oriented towards problem solving)

Ideal Typical Modes of Knowledge Production

[Gibbons, et al, 1994 rephrased)

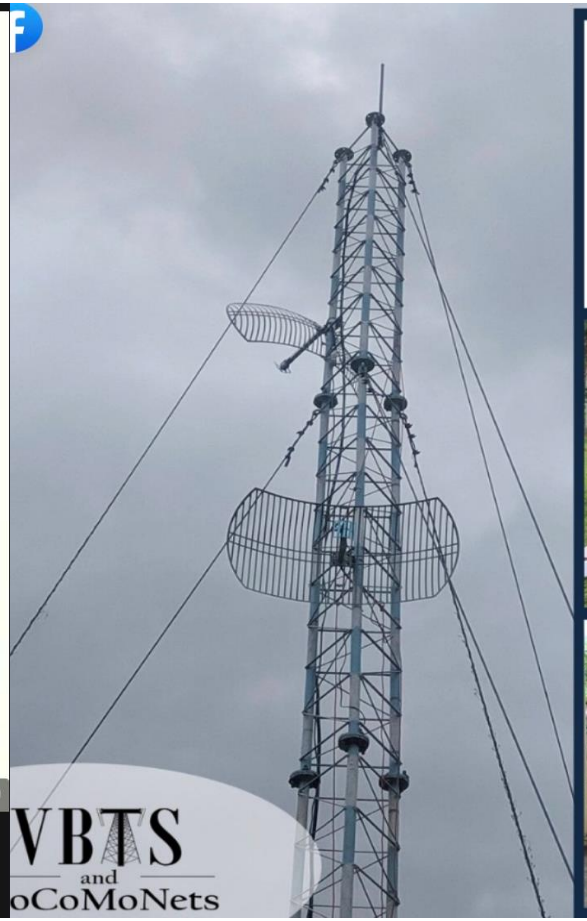
MODE 1 (Disciplinal)

- knowledge is produced in the context of academic interests of specific communities
- communities are organized by disciplines in delineated academic departments
- Quality is determined technically through peer review
- university as site of knowledge production

MODE 2 (multidisciplinary to address current and anticipated problems)

- knowledge is produced in the context of application to concrete problems
- transcends to theoretical and methodological positions of collaborating research partners from different disciplines
- Quality is assessed not only in technical terms but in terms of relevance and usefulness in problem solving
- multiple and alternative sites of knowledge production

Sample Mode 2 Research: Philippine California Advanced Research Institute *[Philippine government funding for health innovations and translational medicine and Information Infrastructure Dvelopment]*



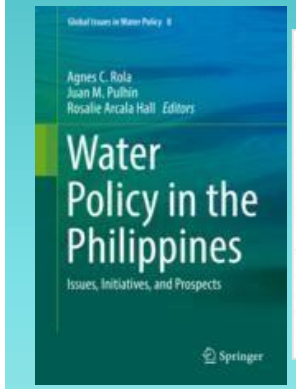
Government funds to the University for Interdisciplinary Mode 2 Research (EIDR)

Towards Good Water Governance for Development: A Multi-Case Analysis

Dr. Agnes C. Rola
UP Los Baños

with UP Baguio and UP Visayas

7 journal and book publications



International Journal of Water Resources Development, 2015
http://dx.doi.org/10.1080/07900627.2015.1060196
Routledge
Taylor & Francis Group

Drivers of water governance reforms in the Philippines

Agnes C. Rola[a]*, Corazon L. Abansi[b], Rosalie Arcala-Hall[c], Joy C. Lizada[d], Ida M.L. Siason[c] and Eduardo K. Araral Jr[e]

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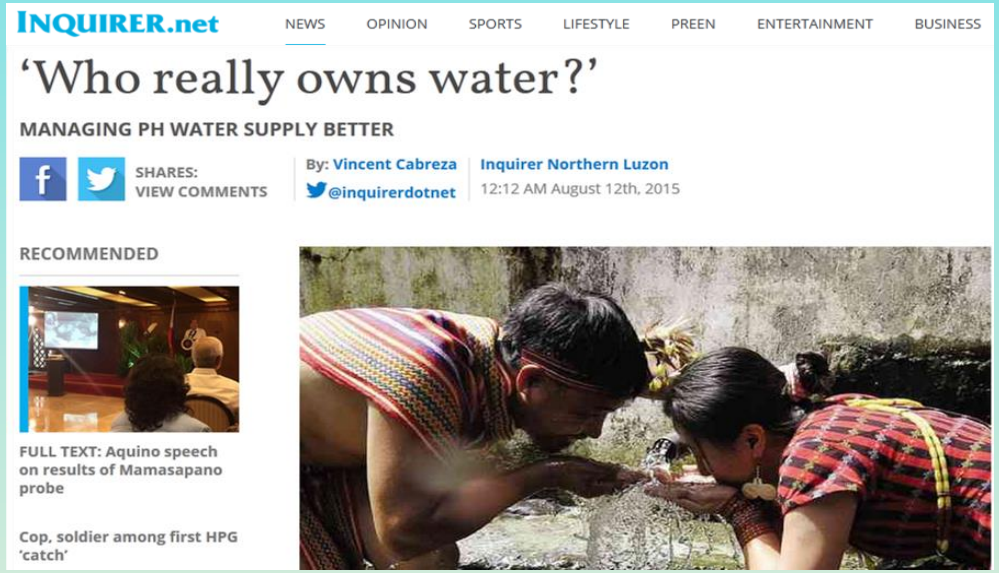
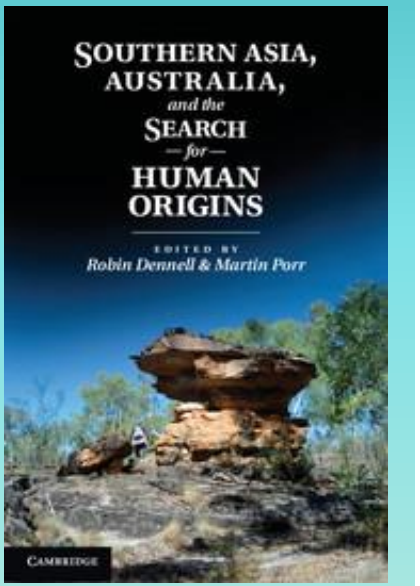


*Government funded Disciplinal with Interdisciplinary features **Mode1** but linked to Heritage (EIDR)*

Paleoenvironmental and biodiversity study of Mindoro Island

Dr. Armand Mijares
UP Diliman

9 journal and book publications

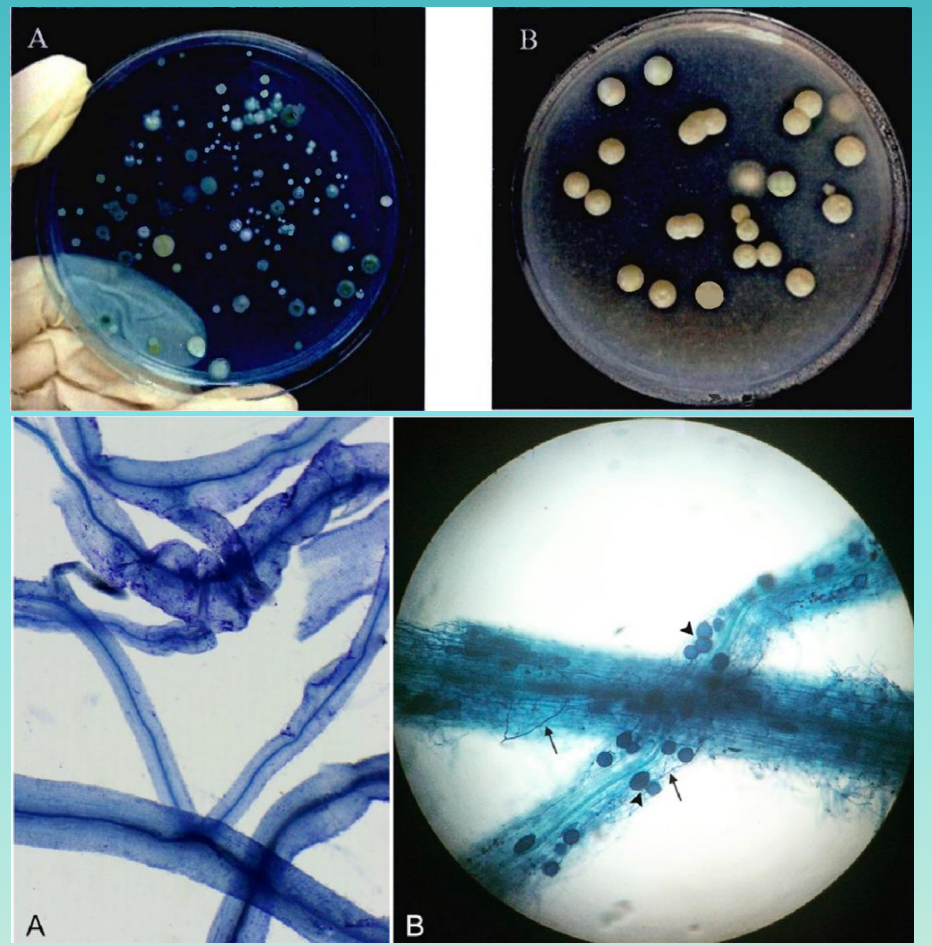


Government funded Mode 1basic research with application in mind (EIDR)

8 journal publications and patent application

Assessment of the effects of combining biochar fertilizer and vermicompost on soil quality and crop production

Dr. Nelly Aggangan
UP Los Baños



Clarification 2: Government bias in recent years for knowledge production within an Innovation Ecosystem Framework

RTI-STRIDE Model

- Five dynamic processes

(1) education and human capital development;

(2) research and knowledge creation;

(3) direct collaboration between universities and industry, particularly but not exclusively through industrial extension and direct service provision;

(4) intellectual property: protection, licensing, and commercialization of technology;

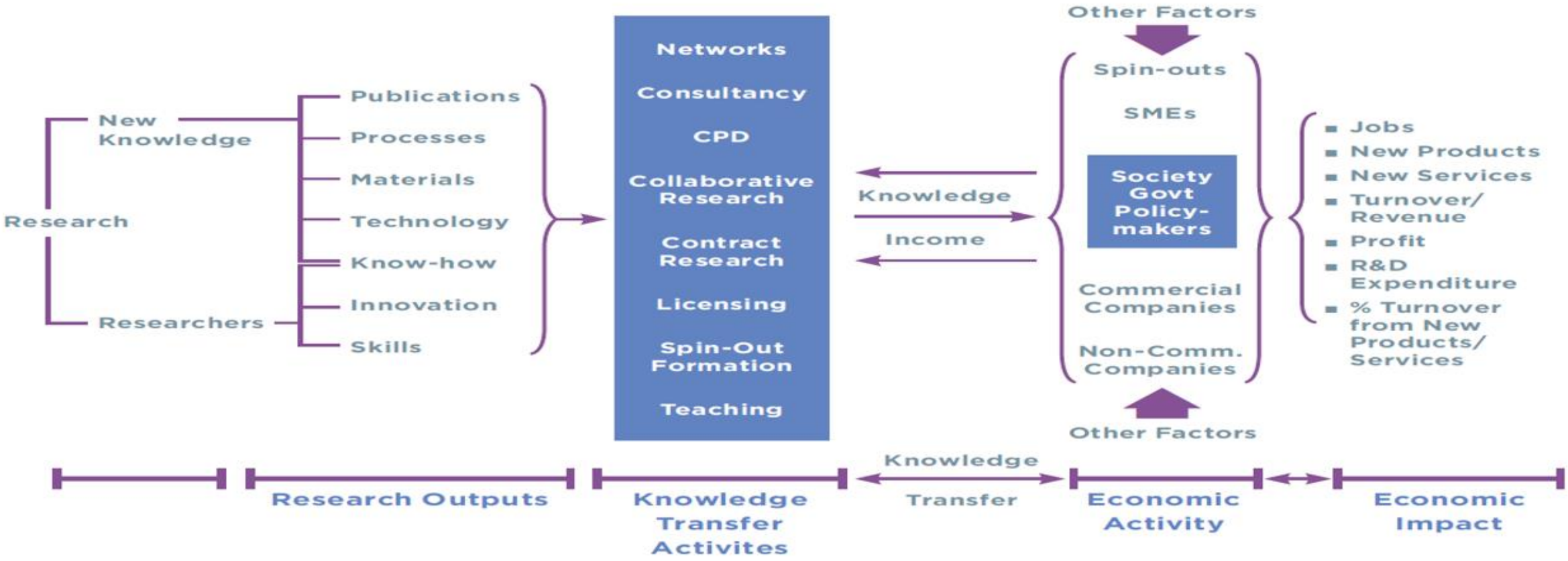
(5) startup and spinoff companies based on technology and innovation.

These processes occur in the context of

(6) the environment for collaboration, including information sharing, trust, and social capital, which is represented by the outer circle.

Source: *Science, Technology, Research and Innovation for Development (STRIDE) Philippines Innovation Ecosystem Assessment, November 2014*

THE RESEARCH – INNOVATION – ENTREPRENEURSHIP CONTINUUM



Source*: Dr. Napoleon Juanillo's presentation of R&D, innovation and human capital development in Chapters 2, 6 and 8 of the Philippine Development Plan 2023-2028*

Sampling of Strategies

Malaysia: Selection of Research Universities in 2007 with extra government funding to ensure their fast development [with stringent KPIs performance-based]

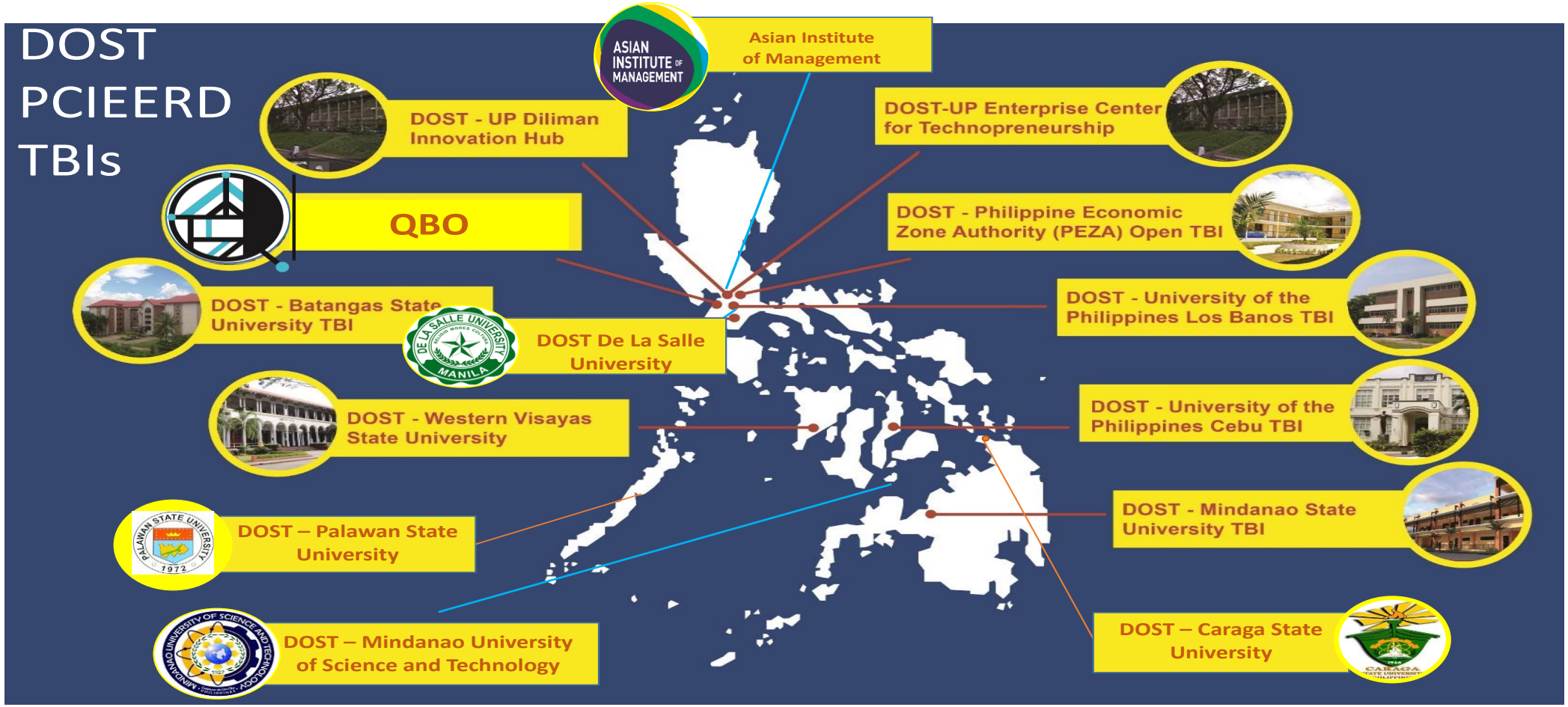
Within 5 years s

- **3.1x Increase in Publications from**
- **2007-2012. Highest in the World**
- **4x Increase in Citations**
- **RM1.25 billion revenue**
- **generated from MRUs as solution providers to industries, agencies & NGOs**

Source: *Pressetation of Dato' Prof Dr Asma Ismail, FASc Director General of Higher Education Department of Higher Education Ministry of Higher Education Malaysia at the Victoria-southeast Asia Higher Education Forum, 19 May 2016*

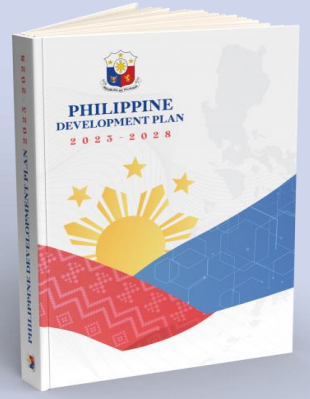
Sampling of Strategies

Philippines: Building an Ecosystem of Innovations with Universities as Technology Building Institutions (TBIs)



Source: David, CP. Building an Ecosystem of Innovations. Presented at the First TBI Summit, DOST-PCIEERD

Sample Strategies in Government Plans

Sample Target Outcome	Sample Strategies
Basic R and D and Knowledge Creation Strengthened 	**Strategy Nurture a supportive environment for R&D** The government, in partnership with the private sector to build laboratories, science and technology research facilities, Knowledge, Innovation, Science and Technology (KIST) Parks, university science and technology parks, technology business incubators, and other infrastructure that can reduce the complexity and upfront costs and risks for private R&D. **Aggressively increase national expenditure in R&D and its commercialization** Increase investments in R&D that can benefit the entire country, which can also invigorate private R&D expenditures in related fields. Pursue R&D that seeks to improve the production of higher value-added goods and services, reduce the country's reliance on foreign technology, and strengthen the capabilities of domestic firms to create and capture economic value.
Market-driven and customer-centered research and development advanced	**Carry out R&D, technology, and innovation in mutually beneficial private-public collaborations** Support and recognize collaborative work of public researchers and private firms on R&D, technology, and innovation. Compensate the time spent for industry research and consultation by faculties of state universities and colleges. Facilitate the licensing of IP generated by public universities and research institutes, including a royalty sharing scheme and/or selling, if necessary, with the industry.
Acceleration of commercialization of market-oriented and inclusive STI products funded	**Intensify the technology transfer, extension, and commercialization of publicly funded technologies** Provide public research institutions and state universities and colleges with platforms, including avenues to pitch their R&D products and technology developed, to successfully commercialize their technologies. Programs will also be implemented which involve private sector participation through the promotion, utilization, and commercialization of investments in these products.